Sail Car

Build a wind-powered vehicle!

Kit contains:

- 1 cardboard rectangle
- 4 cardboard wheels
- 2 skewer pieces
- 2 straw pieces
- 2 wooden blocks
- 2 craft sticks
- paper & cardstock

You will need: a pin for poking holes, tape, and glue.

Optional: extra paper, scissors, and a stopwatch.

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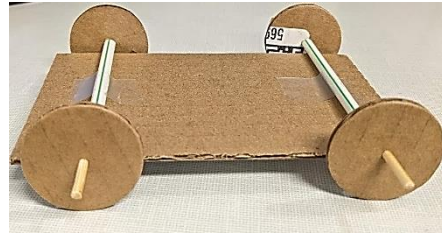
INSTRUCTIONS

Step 1. Use a pin to poke a hole in the centers of your four cardboard wheels.

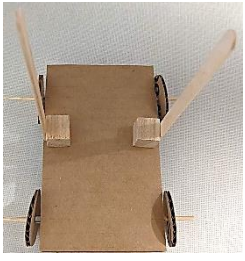
Step 2. Tape the straw pieces **parallel** to each other on the cardboard rectangle.

Step 3. Thread one wheel onto each skewer (axle). Slide each axle through a straw. Thread the remaining wheels onto the empty skewer ends.



(bottom view of car)

Step 4. Glue each craft stick upright to a block. When dry, glue the blocks to the top of the cardboard rectangle as shown. Be sure that the wheels will not whack into the blocks.



EXPERIMENT WITH SAILS!

In this phase of the project, use tape to make temporary connections between different sails and the craft stick uprights (ideas on the next page).

Propel your car forward with air! You can blow into the sail, fan air into the sail, or set it outside on a windy day. Which sail works best?

DESIGN AN EXPERIMENT!

To determine which sail works best, design an experiment with **constants** that stay the same (car body, wind type, distance traveled) and one **variable** that changes (the sail).

Make a starting line and finish line. Propel your car with the same type of air: a fan or blowing on it with the same strength. Use a stopwatch to time the car equipped with each different sail.

Test sails made with different:

- materials (paper, cardstock)
- attachment points (cupping the sticks, flat)
- shapes (rectangle, triangle)

If you have extra paper, try even more ideas!